Factors Predicting Financial Sustainability in the Banking Sector

by Sienly Veronica

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Abstract

The banking sectors are striving to operate their businesses during the Covid-19 pandemic. This requires innovation to enable the provision of services to the community and improve financial performance. Therefore, this research aimed to analyze the effect of intellectual capital on financial sustainability mediated by financial performance. The purposive sampling technique was employed, with 31 national private banks listed on the IDX as samples and PLS-SEM to solve the research hypothesis. The result demonstrated that the financial performance variable mediates the effect of intellectual capital on financial sustainability. The implication is that the banking sector should pay attention to its intellectual capital, which will improve its financial performance and promote the sustainability of the business.

Keywords:

intellectual capital; financial performance; sustainable; financial sustainability

INTRODUCTION

The Covid-19 pandemic has impacted the economy of all countries, including Indonesia, and disrupted the growth of the business sector. This situation has also negatively affected the banking industry, an intermediary institution that provides investment funds for businesses. The banking sector faces challenges due to the pandemic, necessitating financial sustainability procedures to ensure its survival.

Sustainability in the banking sector is indicated by financial sustainability. This is a company's ability to meet all economic costs and develop physical, human, and intellectual infrastructure to maintain its production capacity (Pedersen et al., 2017). Besides the physical and human aspects, intellectual development must be improved to ensure the company can compete and survive during a crisis, such as the Covid-19 pandemic.

As the fastest-changing financial services industry, the banking sector requires innovation via reliable technology. According to Xu & Liu (2020), using reliable technology indicates an increase in a bank's information and knowledge resources and leads to improved intellectual capital. This will subsequently increase the company's competitiveness and financial performance. Wijaya & Amanah (2017) stated that intellectual capital is a resource owned by a company, which embodies the difference between the corporate's market and book value. It is often the main factor in determining a company's profit.

Additionally, Pulic (1998) affirmed that intellectual capital consists of human, structure, and consumer capital, which enable the generation of added value to the company. Pulic also developed a method of measuring intellectual capital, namely VAIC™, which provides information about tangible and intangible assets owned by the corporation. The intellectual capital Value-Added Coefficient (VAIC™) is a formula to help present and calculate information about the value created by tangible and intangible resources (Gozali & Hatane, 2014).

VAIC™ consists of three main elements, i.e., value-added from capital employed, human capital, and structural capital. The value-added from the capital employed indicates the value formed by one unit of physical capital. This ratio indicates the contribution each unit of capital made to the organization's added value (Wijayani, 2017). The value-added from human capital describes an employee's ability to generate value for the business from the funds spent by the company. An increase in the value generated from each Rupiah issued denotes the presence of leading human resources and quality employees who can improve company performance (Harianja & Fauzie, 2014). Structural capital value-added is the contribution of structural capital to value formation. It is calculated by the amount of structural capital required to obtain one (1) Rupiah of added value and describes an indicator of value formation (Wijaya & Amanah, 2017).

Meanwhile, financial performance is an analysis of the degree to which financial targets have been accomplished (Pham, 2021). This research determined the financial performance of several banks to describe their financial position during a specific period, including aspects of raising and distributing funds (Tristiningtyas & Mutaher, 2013).

According to Nasfi (2019), Return on Assets (ROA) is a tool for assessing banking performance. It also describes the effectiveness of a company in obtaining profits by maximizing its assets (Sarwono & Sunarko, 2015). Hence, this research employed ROA to assess the financial performance of various banks.

Corporate sustainability correlates with a company's ability to achieve profits, protect the environment, and improve social life (Supriyadi, 2013). The sustainability of banking institutions can be measured using financial sustainability ratios. Almilia et al. (2009) stated that Financial Sustainability Ratio (FSR) greater than 100% is an excellent benchmark to measure this capability. High FSR values are achieved when the total financial income is higher than the financial burden, enabling businesses to continue their operational activities.

Several types of research have explored the effect of intellectual capital on financial performance and financial sustainability, as well as the influence of financial performance on financial sustainability. These findings have been inconsistent, as research by Chu et al. (2011), Clarke et al. (2011), Ciptaningsih (2013), and Hamdan (2018) showed that intellectual capital has no impact on market-based financial performance due to conditioning by company policies and the manager's attitude. Conversely, the results of Mondal & Ghosh (2012), Fathi et al. (2013), Devi et al. (2017), Budiarso (2019), Siswanti & Sukoharsono (2019), and Robiyanto et al. (2019) indicate that intellectual capital positively affects the financial performance of companies. This implies that intellectual capital has become one of the most critical investments for improving corporate financial performance.

Meanwhile, the results of research by Almilia et al. (2009), Kapoor & Sandhu (2010), Amouzesh et al. (2011), Ameer & Othman (2012), Pan et al. (2014), Pham et al. (2021), and Yilmaz (2021) showed that a company's financial performance positively affects financial sustainability. This signifies that engagement in sustainable business practices will improve financial performance. However, the research by Wahyuni & Fakhruddin (2014) showed that financial performance has no positive effect on financial sustainability.

Jordao & Almeida (2017) and Siswanti & Sukoharsono (2019) proved that financial performance mediates the effect of intellectual capital on business sustainability. Intellectual capital improves financial performance systematically over time and increases financial sustainability. Recently, many digital payments emerged and are preferred for transactions, particularly during the pandemic. This led to the interest in examining the need for banks to manage their intellectual capital to improve financial performance and survive the increasingly fierce competition.

Based on the inconsistency of previous investigations, alongside digital payment development, this research analyzed intellectual capital as a predictor of financial sustainability variables, using financial performance as a mediator. The practical contribution of this research is that the banking sectors can understand the factors that affect financial sustainability and use the findings as references to make decisions that will promote their survival in this pandemic. The theoretical contribution is strengthening existing theories, especially concerning intellectual capital, financial performance, and financial sustainability.

METHOD

The causal research method was employed, using data comprising the financial statements of national private banks listed on the Indonesian Stock Exchange (IDX). The population was all national private banks in Indonesia, and the non-probabilistic purposive sampling technique was used. The criteria for inclusion were a national private bank listed on the IDX, registration of national private banks on IDX before 2016, and the publication of financial reports continuously during the year of observation from 2016 to 2020.

Subsequently, a sample of 31 national private banks listed on IDX was obtained. The variables examined were 1) intellectual capital as the exogenous latent variable, calculated using the Intellectual Capital Value-Added Coefficient (VAIC). 2) Financial performance as the mediating latent variable, measured via the Return on Assets (ROA). 3) Financial sustainability as the endogenous latent variable, calculated using the Financial Sustainability Ratio (FSR). The data analysis method used was the Partial Least Square - Structural Equation Modelling (PLS-SEM). Structural equation analysis is a variant-based technique that can simultaneously measure and test structural models. It enables the estimation of complex models and prediction in statistical models, using structures designed to provide a causal explanation (Sarstedt et al., 2017). This research employed PLS-SEM to determine the applicability of the created to predict financial sustainability in the banking sector. The path diagram formed can be observed in Figure 1.

Figure 1. Path Diagram of Exogenous Latent Variables, Mediation Latent Variables, and Endogenous Variables and their Comparing Indicators
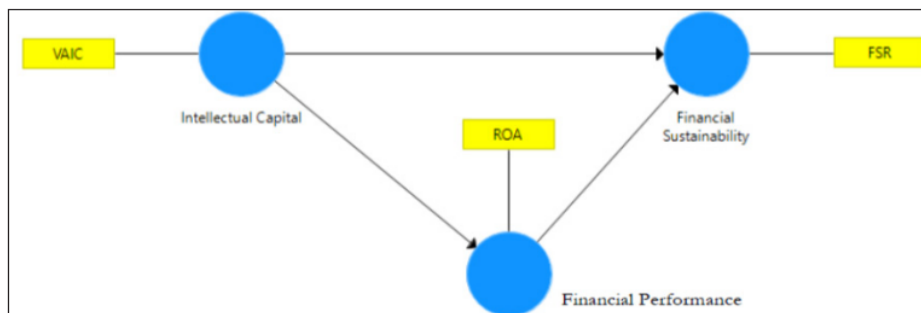
Source: SmartPLS Result

RESULTS AND DISCUSSION

The results of research testing using the PLS-SEM method can be interpreted in two stages: the measurement and structural models (Makki & Lodhi, 2014). During the first stage, validity and reliability tests were used to measure each construct, as reflected in the path diagram in Figure 1. The model measurement was performed using the SmartPLS 3.3.3 program with the PLS Algorithm to generate values for the validity and reliability tests. There are two types of validity in PLS-SEM, namely convergent

and discriminant. Convergent validity comprises a set of indicators representing one latent variable, where each is assessed using the average value of the extracted variance (Average Variance Extracted / AVE). AVE values > 0.5 are considered to possess adequate convergence, meaning one latent variable is capable of describing more than half the variance of its indicators.

Table 1. Value and Square Root of AVE

Latent Variable	AVE	Square Root of AVE
Intellectual capital	1	1
Financial performance	1	1
Financial Sustainability	1	1

Source: SmartPLS Processing Results

Discriminant validity is the degree of empirical difference between constructs in a structural model (Hair et al., 2019). It was measured using the Fornell-Larcker criteria and cross-loading, where the excellent value of the model fit for discriminant validity is ≥ 0.708 (Hair et al., 2019). The value of the convergent validity generated by the resulting AVE value can be seen in Table 1.

Table 2. Cross-Loading Indicator Value for the Latent Variables

Indicator	Latent Variable		
	Intellectual Capital	Financial Performance	Financial Sustainability
VAIC	1	-0.258	-0.366
ROA	-0.258	1	0.545
FSR	-0.366	0.545	1

Source: SmartPLS Processing Results

Based on the research results, the AVE values of the latent variables of intellectual capital, financial performance, and financial sustainability were 1. The AVE value was one (1) because each latent variable in this research had only one (1) indicator. Since this score is > 0.5, the latent variables were declared valid. The values for discriminant validity were also calculated, as shown in Tables 2 and 3.

Table 3. Fornell-Larcker value

Latent Variable	Intellectual Capital	Financial Performance	Financial Sustainability
Intellectual Capital	1		
Financial performance	-0.258	1	
Financial Sustainability	-0.366	0.545	1

Source: SmartPLS Processing Results

Hair et al. (2019) use two methods to assess consistent internal reliability in PLS: Cronbach's alpha and composite reliability. The criteria for describing a latent variable as reliable is achieving Cronbach's alpha and composite reliability scores ≥ 0.7 (Hair et al., 2019). The results of the reliability test conducted using Cronbach's alpha method and composite reliability can be seen in Tables 4 and 5.

Table 4. Value of Cronbach's Alpha

Latent Variable	Cronbach's Alpha
Intellectual Capital	1
Financial Performance	1
Financial Sustainability	1

Source: SmartPLS Processing Results

Table 5. Value of Composite Reliability

Latent Variable	Composite Reliability
Intellectual Capital	1
Financial Performance	1
Financial Sustainability	1

Source: SmartPLS Processing Results

As shown in Tables 4 and 5, the Cronbach's alpha and composite reliability values generated by every latent variable were 1. Since this value is ≥ 0.7, all latent variables used in this research were considered reliable. Based on the validity and reliability testing, the indicators and latent variables used in this research were regarded as valid and reliable, and the formed model was appropriate for hypothesis testing.

After the first stage of determining the measurement model, all exogenous and endogenous latent variables were declared valid and reliable. In the second stage, the structural model was established by estimating the coefficient of determination value, path coefficient value, effect size f^2, and Q^2 value for the path model built.

The coefficient of determination (R^2) describes the influence of the exogenous latent variable on the endogenous latent variable. Table 6 shows the results of the R^2 value. The significance of the R^2 value generated in Table 6 is described below: The R^2 value denoting the magnitude of the effect of the intellectual capital latent variable on financial performance was 0.067. This indicates that the correlation between intellectual capital and financial performance is 0.258, obtained from the root of the R^2 value of 0.067, and signifies a low correlation. The R^2 value of the influence of the financial performance latent variable on financial sustainability was 0.352. This indicates that the correlation between financial performance and financial sustainability is estimated at 0.593, obtained from the root of the R^2 value of 0.352, alongside denotes a moderate correlation.

Table 6. R^2 Value

Latent Variable	R^2	Adjusted R^2
Financial performance	0.067	0.06
Financial Sustainability	0.352	0.343

Source: SmartPLS Processing Results

The outcomes of the SmartPLS 3.3.3 program with bootstrapping facilities to obtain the path coefficient values are listed in Table 7. Table 7 illustrates the influence of intellectual capital on corporate financial performance, with a P value of 0.001, which is < the value of 0.05. Financial performance was also shown to impact financial sustainability, as a P value of 0 was obtained, which is < α value of 0.05. Finally, financial performance was proven to mediate the effect of intellectual capital on financial sustainability, denoted by a P value of 0.013, which is < α value of 0.05.

Table 7. Path Coefficient Values

Path	Standardized Beta	Standard Error	t - Value	P Values
Intellectual capital → Financial Performance	-0.258	0.08	3.221	0.001
Financial Performance → Financial Sustainability	0.483	0.062	7.764	0
Intellectual Capital → Financial Performance → Financial Sustainability	-0.125	0.05	2.505	0.013

Source: SmartPLS Processing Results

In addition, a structural model was obtained from the assessment of the inner model, as demonstrated in Figure 2. Figure 2 explains the direct influence of intellectual capital on financial performance as well as financial performance on variable financial sustainability. The t value indicates this on each line, which explains the relationship between the latent variables.

Figure 2. Structural Model

Source: SmartPLS Result

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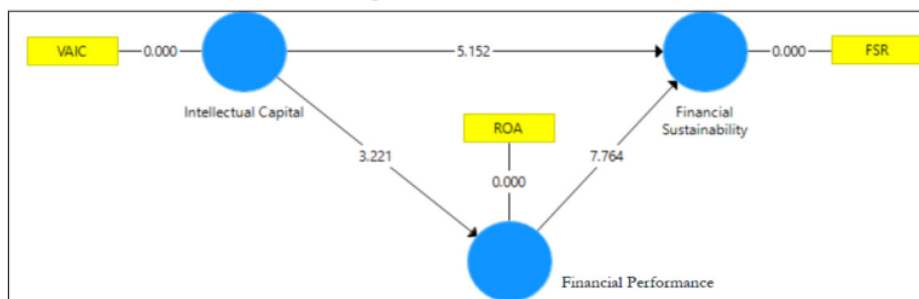
Changes in the R^2 value occur when an exogenous latent variable is eliminated from the model. This procedure can be used to estimate the impact of the omitted variable on the endogenous latent variable and is called the effect size f^2 (Hair et al., 2019). Table 8 shows the effect size of f^2 for this research. From Table 8, removing the latent variable of intellectual capital from the path model produces an effect of 0.071 on the latent variable of financial performance, which is categorized as a small effect. Also, the elimination generated a small effect of 0.084 on the latent variable of financial sustainability. The removal of the financial performance from the path model created a medium effect of 0.336 on the latent variable of financial sustainability. Based on the analysis of the effect size, f^2, the latent variable of financial performance, was determined as an essential variable influencing financial sustainability, as its removal produced a medium effect on the path model.

Table 8. Effect size(f^2)

Latent Variable	Intellectual capital	Financial Performance	Financial Sustainability
Intellectual capital		0.071	0.084
Financial Performance			0.336
Financial Sustainability			

Source: SmartPLS Processing Results

The Q^2 value is an indicator to measure the predictive power or relevance. It is generated from a blindfolding process that shows the path model's accuracy in predicting the observed value. The slight difference between the predicted and observed values is translated into a higher Q^2 value to produce a higher predictive accuracy (Hair et al., 2019). The criterion for Q^2 is that the value must be greater than 0, which indicates sufficient reconstruction of the observed values and the model's predictive accuracy.

As a rule of thumb, Q^2 values above 0, 0.025, and 0.50 illustrate the path model's tiny, medium, and significant predictive relevance (Hair et al., 2019). Table 9 presents the value of Q^2 generated in this research. The values of Q2 in Table 9 are all greater than zero, meaning that the structural model formed is congruent with the observation data and can be used for prediction.

Table 9. Value of Q^2

Latent Variable	SSO	SSE	Q^2 (=1-SSE/SSO)
Intellectual capital	155	155	
Financial Performance	155	145.261	0.063
Financial Sustainability	155	100.005	0.355

Source: SmartPLS Processing Results

DISCUSSION

The path coefficient value obtained in this research indicates that intellectual capital influences corporate financial performance. The findings are consistent with research by Bayraktaroglu et al. (2019), which described a relationship between intellectual capital and corporate performance. Similar results were obtained by Siswanti & Sukoharsono (2019), Weqar & Haque (2020), and Olarewaju & Msomi (2021).

The influence of intellectual capital on financial performance highlights its role as a potential resource that can generate added value and maximize company performance (Devi et al., 2017). Additionally, Budiarso (2019) stated that intellectual capital is a knowledge asset and an essential part of creating company value, as it can improve performance and plays a role in competitive advantage. This was confirmed by Festa et al. (2021), who affirmed that intellectual capital positively impacts company profits and value and contributes to company performance and financial stability.

Furthermore, Sheikh & Wepukhulu (2019) research highlighted the importance of an intellectual capital component in improving the corporate's financial performance. This was corroborated by Soetanto & Liem (2019), who described a positive and significant relationship between intellectual capital and its components on company performance. Research by Asiaei et al. (2020) also described a positive and significant relationship between the components of intellectual capital and financial performance. Finally, Isola et al. (2020) reported similar findings.

The results of this research show that companies in the banking industry develop and utilize intellectual capital as a competitive advantage, thereby improving their financial performance. According to Nazir et al. (2020), knowledge is an intangible asset that has become very important for financial companies in recent years. This highlights the need to focus on every element of intellectual capital to improve financial performance. Using banking companies as a sample, Soewarno & Tjahjadi (2020) found that intellectual capital affects financial performance.

Alhassan & Asare (2016) also stated that intellectual capital combined with other assets could improve a company's performance. This can be done by increasing investment in intellectual capital (Asif et al., 2020), contributing to firm value (Kasoga, 2020). According to Lukman & Tanuwijaya (2020), higher intellectual capital coefficient values indicate that a company is increasingly applying the components of intellectual capital to create value. In the companies used as samples, the coefficient value of intellectual capital increased during the year of observation, signifying their application of the components of intellectual capital to create firm value.

An example of using intellectual capital is using digital technology to enable consumers to conduct banking transactions, alongside training employees to improve their ability to provide full service to consumers. The combination of technical support and the provision of good service allows the enhancement of the company's financial performance. Meanwhile, this research also measured the effect of financial performance on financial sustainability using ROA. The results are congruent with research by Bhanot

& Bapat (2015), which stated that a company's financial performance measured by ROA significantly contributes to business sustainability.

Marwa & Aziakpono (2015) also confirmed ROA to be the primary determinant of financial sustainability, while Bartolacci et al. (2018) reported a positive and significant relationship between both variables. Conversely, Saputri (2019) stated that the profitability value as measured by ROA has a significant adverse effect on the company's sustainability, while Sholikah & Miranti (2021) provided contrary findings.

ROA is also an illustration of a company's ability to generate profits compared to its total assets (Nurhikmah & Rahim, 2021) and has been shown to increase sustainability (Rianasari & Pangestuti, 2016; Henock, 2019). In this research, the companies used as samples had an average ROA value that increased during the year of observation to facilitate a rise in sustainability. This supports research by Mohammad et al. (2017), where a gradual increase in the sustainability of private commercial banks was found due to ROA, which increased yearly.

Weber (2016) also discovered a relationship between financial performance and sustainability performance among banks in China. The positive effect of financial performance on financial sustainability signifies the survival of a business in the face of competition. It also indicates that the banking companies used as samples display healthy financial performance in executing their operational activities.

Therefore, the sample companies are required to focus on the company's financial performance during their business operations because financial sustainability is a measuring tool to determine their ability to thrive. This was manifested in research by Siswanti & Cahaya (2021), which showed the significant impact of financial performance on business sustainability. Githaiga (2022) also argued that the increase in ROA, a measure of profitability ratios, will increase financial sustainability.

The final section of this research explained the influence of intellectual capital on financial sustainability mediated by financial performance. The findings are consistent with Siswanti & Sukoharsono (2019) findings, which showed that the financial performance of Islamic banks in Indonesia partially mediates the influence of intellectual capital on business sustainability. Siswanti & Cahaya (2021) discovered a partial mediation in their research, while Fajriyanti et al. (2021) found similar results.

Intellectual capital is an important strategy to achieve a competitive advantage. This is facilitated through investment in intellectual capital to realize sustainability (Fathi et al., 2013), highlighting a relationship between both phenomena (Massaro et al., 2018; Secundo et al., 2020). Yusliza et al. (2019) indicated that intellectual capital significantly enables companies to achieve business sustainability. Hence, increasing investment in intangible assets will create a sustainable competitive advantage that can improve the company's overall performance (Ullah et al., 2021). Sofia et al. (2021) argued that company resources are essential and form the basis for competitive advantage, and successful business competitors can improve company performance and sustainability.

In this research, the financial performance variable could mediate the effect of intellectual capital on financial sustainability. This is because poor financial performance, despite increased use of intellectual capital, will lead to financial difficulties and problems in business survival and operations. The sample companies were shown to have focused on and utilized intellectual capital as a competitive advantage to improve their financial performance, thereby facilitating their survival and continued functioning. Jordao & Almeida (2017) stated that intellectual capital impacts company profits and can lead to financial sustainability. Xu & Wang (2018) asserted that as measured by VAIC, intellectual capital positively influences financial performance and impacts company sustainability. According to Alvino et al. (2021) and Xu & Li (2022), applying intellectual capital can increase competition, improve company performance, maintain competitive advantage, and ultimately enhance business sustainability.

CONCLUSION

Based on the data processing and analysis outcomes, this research concluded that intellectual capital affects a company's financial performance. Subsequently, financial performance impacts financial sustainability, and financial performance variables mediate the effect of intellectual capital on financial sustainability. Companies engaged in banking should pay attention to, manage, and invest in intellectual, human, structural, and physical capital by training their employees, using the latest technology, creating a systematic information system, and regularly evaluating existing work procedures. This is because intellectual capital can be used as a competitive advantage to counter the increasingly fierce business competition, improve performance, and promote business survival.

Also, investors should consider intellectual capital because an increase in its coefficient indicates that the application of its components can create value. Investment should be executed by selecting companies that create corporate value. Finally, customers and users of banking facilities should patronize banks investing in intellectual capital, such as technology, employee training, and others. This will facilitate the performance of banking transactions and the achievement of excellent service to obtain benefits.

There were two limitations in this research: First, only private banking companies were examined, preventing the generalization to other company types, though the results were strongly supported by previous research. Future research can expand the object of research to encompass other banking companies, such as Islamic banks. Second, this research only focused on intellectual capital, financial performance, and sustainability. Future research can examine the impact of the green intellectual model, other financial performance measures, such as ROE, and control variables like the firm size on the application of intellectual capital and its effect on firm financial performance and business sustainability.

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